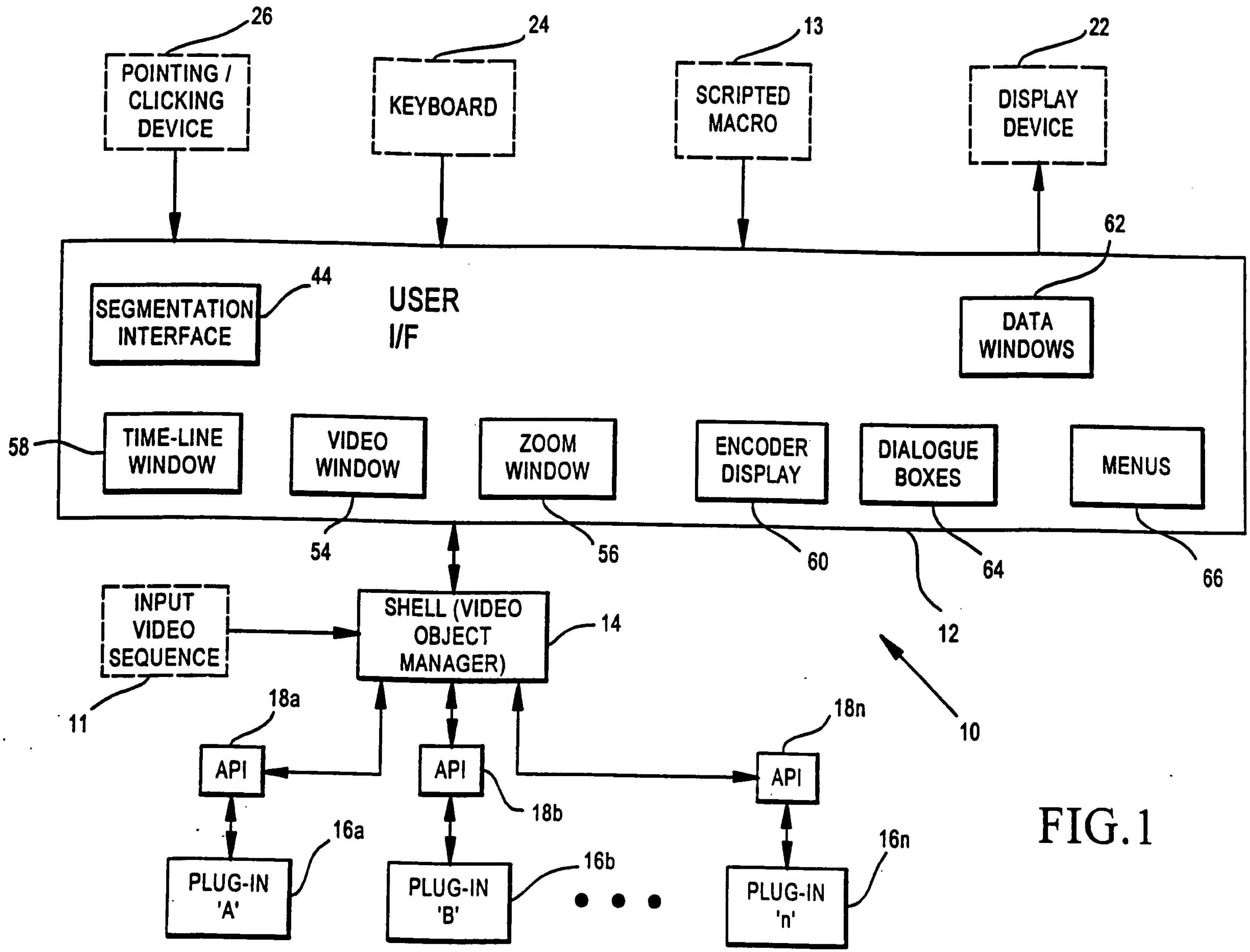
26
POINTING / CLICKING DEVICE
24
KEYBOARD
13
SCRIPTED MACRO
22
DISPLAY DEVICE
62
44
SEGMENTATION INTERFACE
USER I/F
DATA WINDOWS
58
TIME-LINE WINDOW
VIDEO WINDOW
ZOOM WINDOW
ENCODER DISPLAY
DIALOGUE BOXES
MENUS
54
56
60
64
66
12
INPUT VIDEO SEQUENCE
SHELL (VIDEO OBJECT MANAGER)
14
11
18a
API
API
18b
18n
API
10
16a
PLUG-IN 'A'
PLUG-IN 'B'
16b
16n
PLUG-IN 'n'

FIG.1

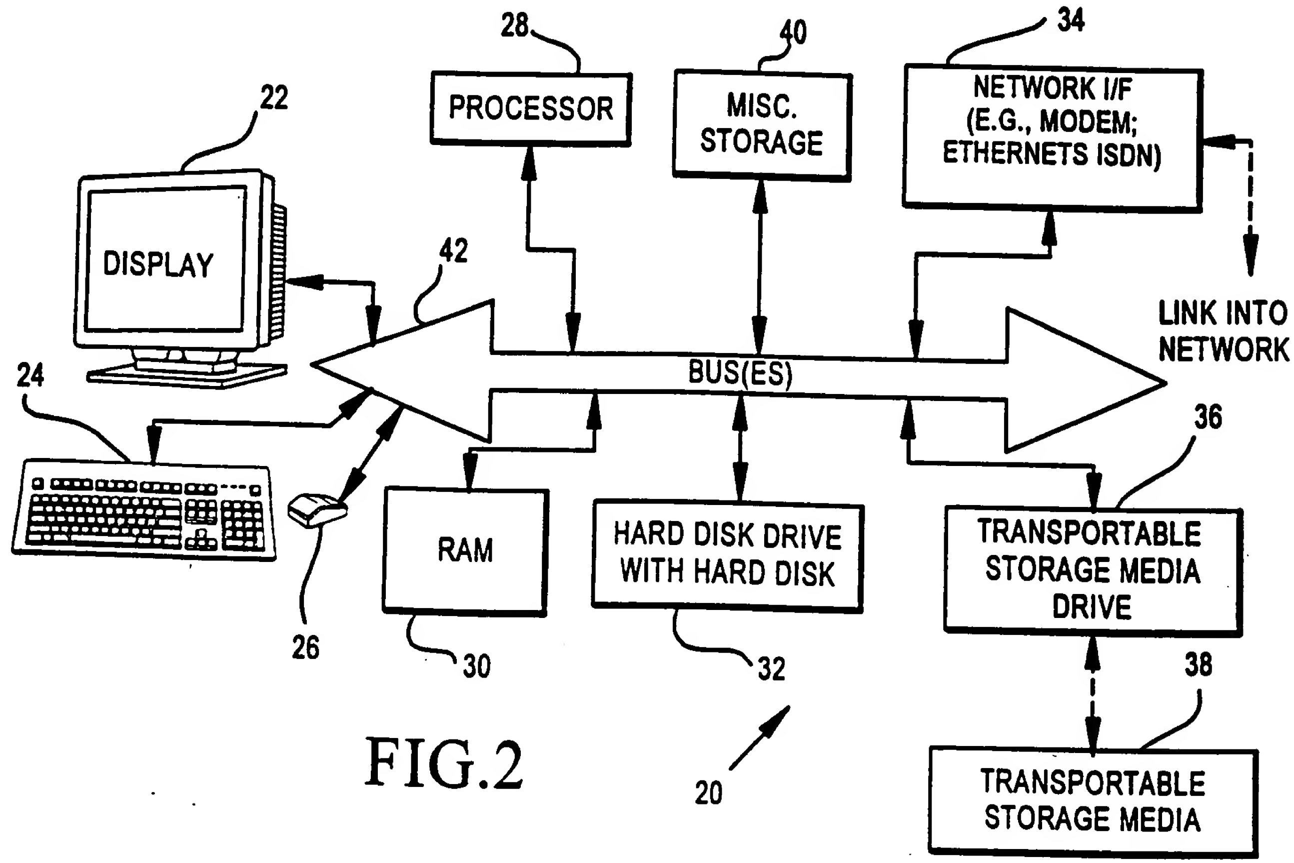

FIG.2

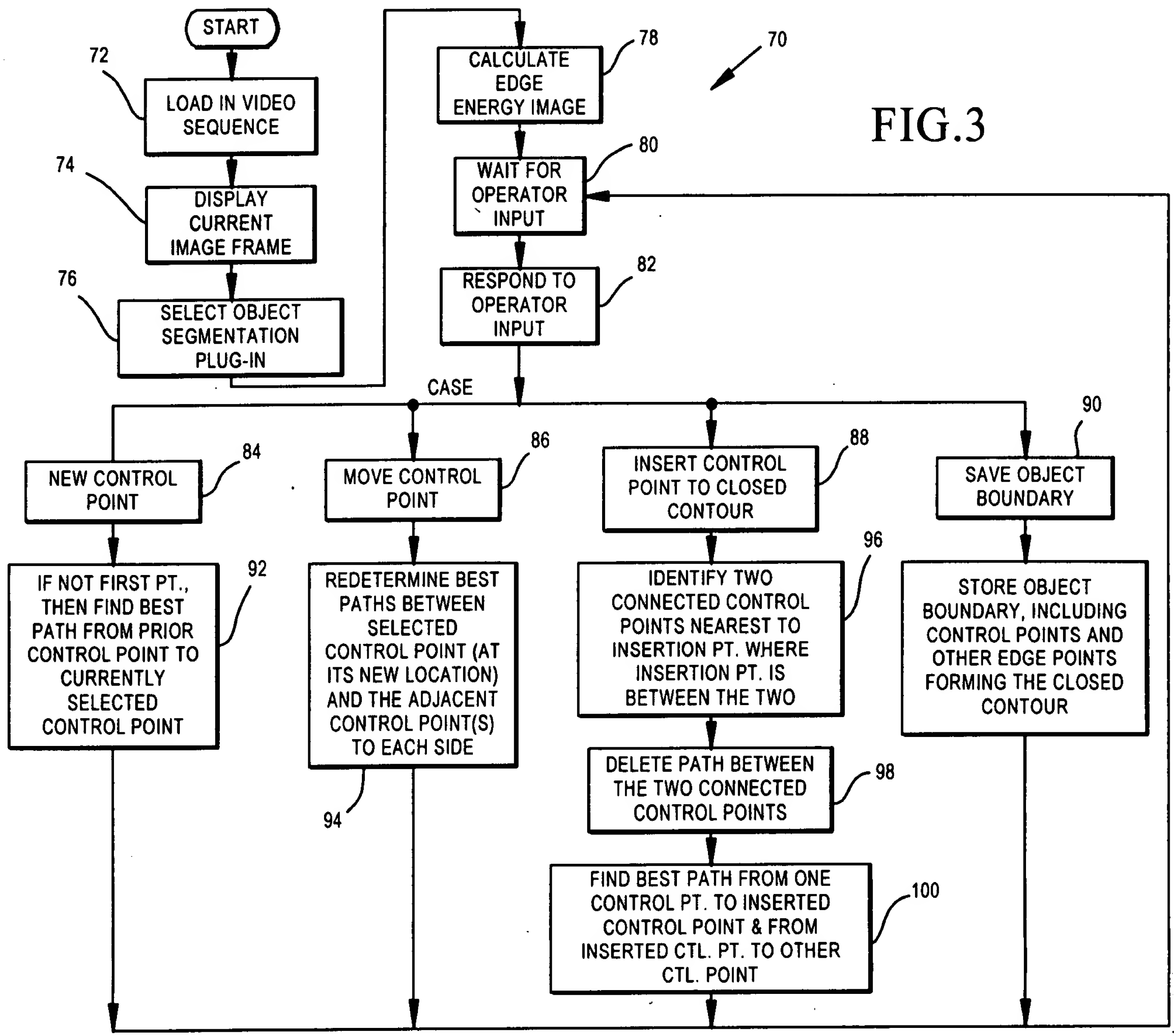
START
72
LOAD IN VIDEO SEQUENCE
74
DISPLAY CURRENT IMAGE FRAME
76
SELECT OBJECT SEGMENTATION PLUG-IN
78
CALCULATE EDGE ENERGY IMAGE
80
WAIT FOR OPERATOR INPUT
82
RESPOND TO OPERATOR INPUT
70
CASE
84
NEW CONTROL POINT
86
MOVE CONTROL POINT
88
INSERT CONTROL POINT TO CLOSED CONTOUR
90
SAVE OBJECT BOUNDARY
92
IF NOT FIRST PT., THEN FIND BEST PATH FROM PRIOR CONTROL POINT TO CURRENTLY SELECTED CONTROL POINT
94
REDETERMINE BEST PATHS BETWEEN SELECTED CONTROL POINT (AT ITS NEW LOCATION) AND THE ADJACENT CONTROL POINT(S) TO EACH SIDE
96
IDENTIFY TWO CONNECTED CONTROL POINTS NEAREST TO INSERTION PT. WHERE INSERTION PT. IS BETWEEN THE TWO
98
DELETE PATH BETWEEN THE TWO CONNECTED CONTROL POINTS
100
FIND BEST PATH FROM ONE CONTROL PT. TO INSERTED CONTROL POINT & FROM INSERTED CTL. PT. TO OTHER CTL. POINT
STORE OBJECT BOUNDARY, INCLUDING CONTROL POINTS AND OTHER EDGE POINTS FORMING THE CLOSED CONTOUR

FIG.3

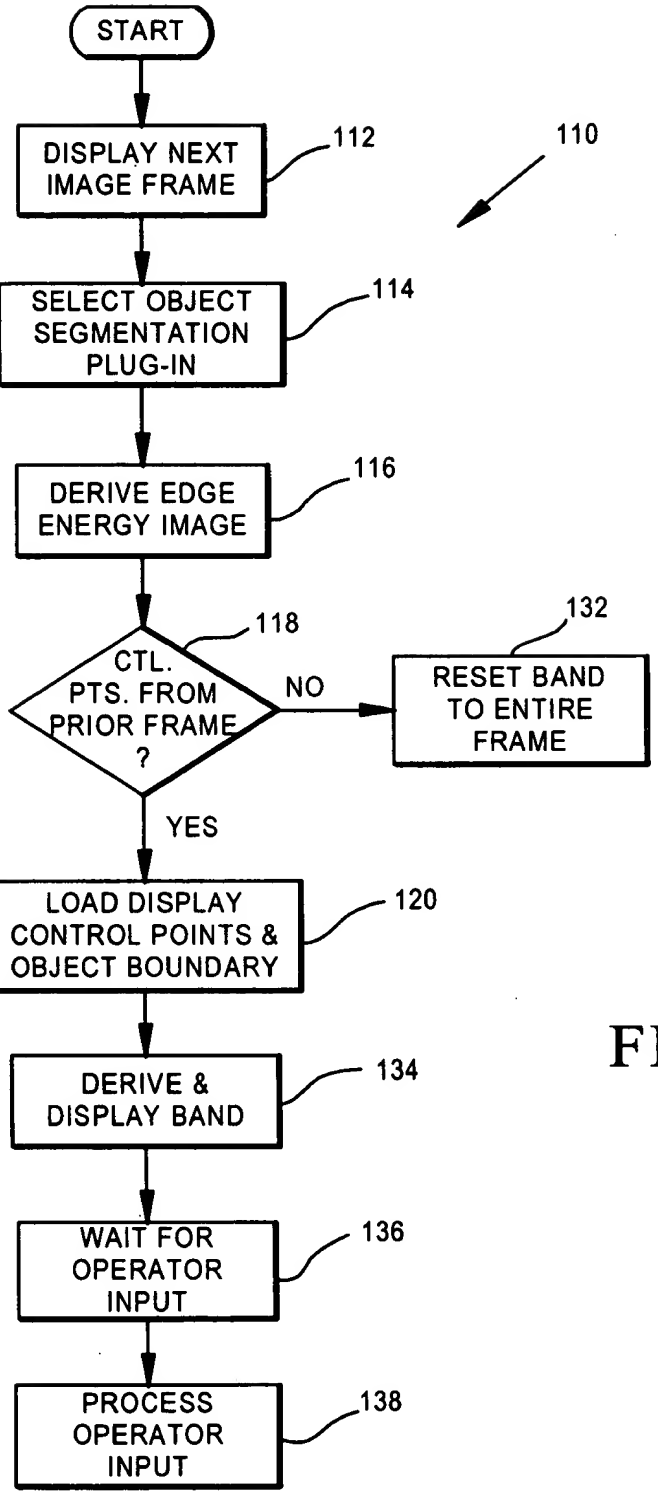
START
DISPLAY NEXT IMAGE FRAME
112
110
SELECT OBJECT SEGMENTATION PLUG-IN
114
DERIVE EDGE ENERGY IMAGE
116
CTL. PTS. FROM PRIOR FRAME ?
118
NO
RESET BAND TO ENTIRE FRAME
132
YES
LOAD DISPLAY CONTROL POINTS & OBJECT BOUNDARY
120
DERIVE & DISPLAY BAND
134
WAIT FOR OPERATOR INPUT
136
PROCESS OPERATOR INPUT
138

FIG.4

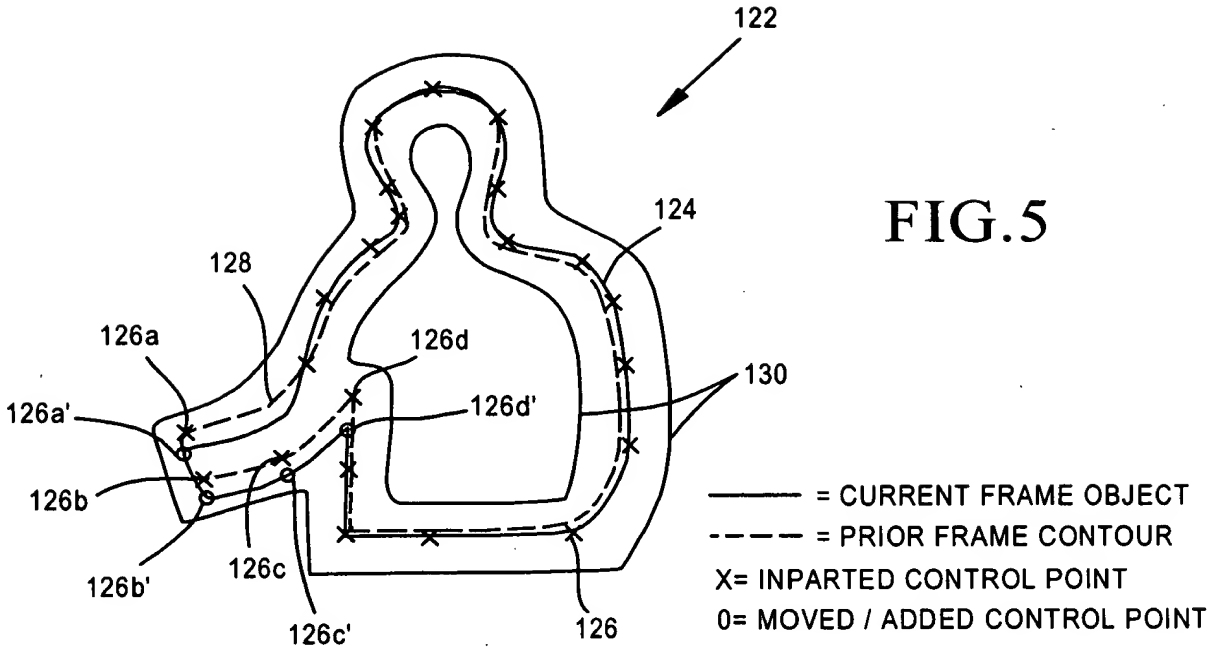
122
124
128
126a
126d
130
126a'
126d'
126b
126b'
126c
126c'
126
= CURRENT FRAME OBJECT
= PRIOR FRAME CONTOUR
X= INPARTED CONTROL POINT
0= MOVED / ADDED CONTROL POINT

FIG.5

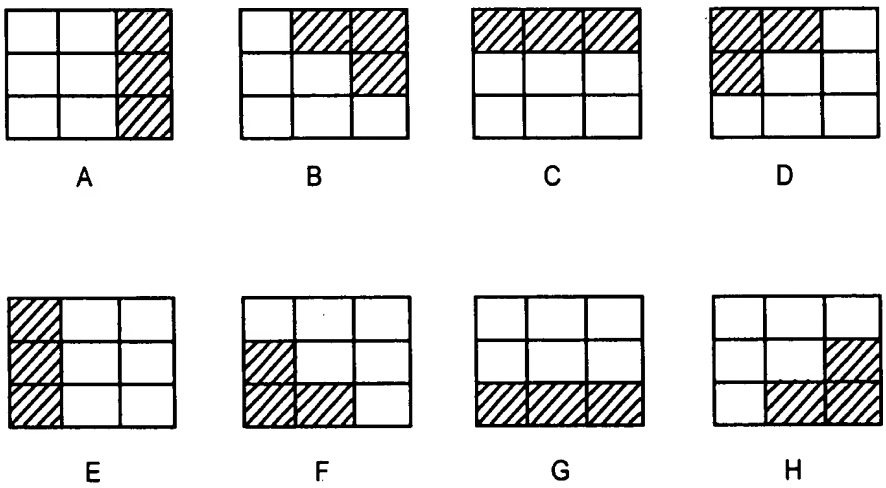
A
B
C
D
E
F
G
H

FIG.6